BARman

BARman Laser TLL and LGA
User manual

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1. Introduction

1.-1 BARman Laser

BARman Laser Pocket Terminal by AXIOME SA is a programmable handheld terminal whose main function is the acquisition, processing and transmission of data to a peripheral processing unit (PC, host computer, cash register, etc.).

Data acquisition is by bar code scanning and/or keyboard.

Data storage and processing modes conform to specific user customized programs downloaded to the terminal.

Data transmission to the interface unit is by serial line through the built-in optocoupler.

BARman Laser is a minicomputer which features a laser scanner of over 20 bar code types, multifunctional keyboard and optocoupler interface, an 8 bit C-MOS microprocessor, 64 KB program-storage Flash-memory, data storage RAM memory, high contrast LCD backlight, RTC calendar-clock, programmable multitone buzzer, programmable red/green led and high capacity rechargeable Nickel-Cadmium battery pack for considerable autonomous walkabout use.

1.-2 Model description

Two models of BARman Laser are available, with different RAM storage capacities.

1.-2.1 BARman Laser TLL

The BARman Laser TLL has a display of 36 characters on 3 lines and is available with 128 KB and 512 KB data storage RAM memory.

1.-2.2 BARman Laser LGA

The BARman Laser LGA has a display of 64 characters on 4 lines, a series of icons, an EEPROM memory to save the parameters during the re-initialisation and is available with 128 KB, 512 KB and 1024 KB data storage RAM memory.

1.-3 BARman Laser programming

The BARman Laser (TLL or LGA) terminal can be programmed to better satisfy the requirements of its intended specific application. This is possible in two ways:

1. Use of the AXEL EXTENDED language (the same as for BARman) which requires AXELE compiler and AXEL_OS xx firmware. AXEL_OS xx must be installed in the terminal before downloading the program. These components are available in the software package SDP350 with illustrative demo programs. (Volume 5)

2. Use of a special development tool called Development System® operating on MS DOS ® platform, and based on ANSI standard "C" language, which requires: C-Compiler, Operating System and System Functions (in pre-compiled libraries), Accessory Programs and a number of illustrative Demo Programs. Those components are available in the software package SDP300. (Volume 8)

1.-4 Laser Radiation Safety Precautions

BARman Laser Pocket Terminal emits low power laser radiation.
This radiation, just like any other high density luminous sources (as for instance the sun), may be harmful to the human eye if stared at directly for a long time. Therefore, do not stare into the laser beam or direct it against other people's eyes.
The laser beam is visible to the human eye and is emitted by the front aperture of the BARman Laser Pocket Laser Terminal.

A label warning about laser radiation and product classification is affixed to the body of the terminal.

This device uses a Class 2 IEC 825 LASER

To use and service this terminal you must not have access to any of its internal parts.

2. Unpacking and getting started

Unpack all the components and check them for any physical damage. Check that they tally with the contents listed in the freight documents (make sure that the serial number on the terminal is the same as the one indicated in the documents).

Keep the packing: you may need it to ship the terminal for servicing. Any damage caused by inadequate packing is not covered by warranty.

Contents of the BARman Laser Pocket Terminal packing:
The packing must contain:

- This manual;
- The BARman Laser Pocket Laser Terminal
- The wrist strap if ordered.

2.-1 BARman Laser interfaces

The interface unit allows the BARman to communicate with a computer. The available interfaces are either single (ILSxxx) or multiple (ILMxxx).
The exclusive magnetic system secures an optimal fastening of the terminal.
The interfaces allow communication with the computer (through optocoupler), as well as charging of battery (through charging contacts).

The different interfaces, cables and the installation procedure are described in the second volume : INTERFACES OPERATING MANUAL

2.-2 Operating manual

The operating manual is made up of seven volumes:

Volume 1: **BARman and t.BARman operating manual.**
Describes the BARman (pen), the t.BARman and there firmware.

Volume 2: **Interface operating manual.**
Describes the single and multiple interfaces (ILS and ILM), the installation and networking. This manual is delivered with each interface.

Volume 3: **AXS communication software.**
Describes the communication software AXS for MS-DOS.

Volume 4: **BARmanager user manual**.
Describes the communication software BARmanager for Windows.

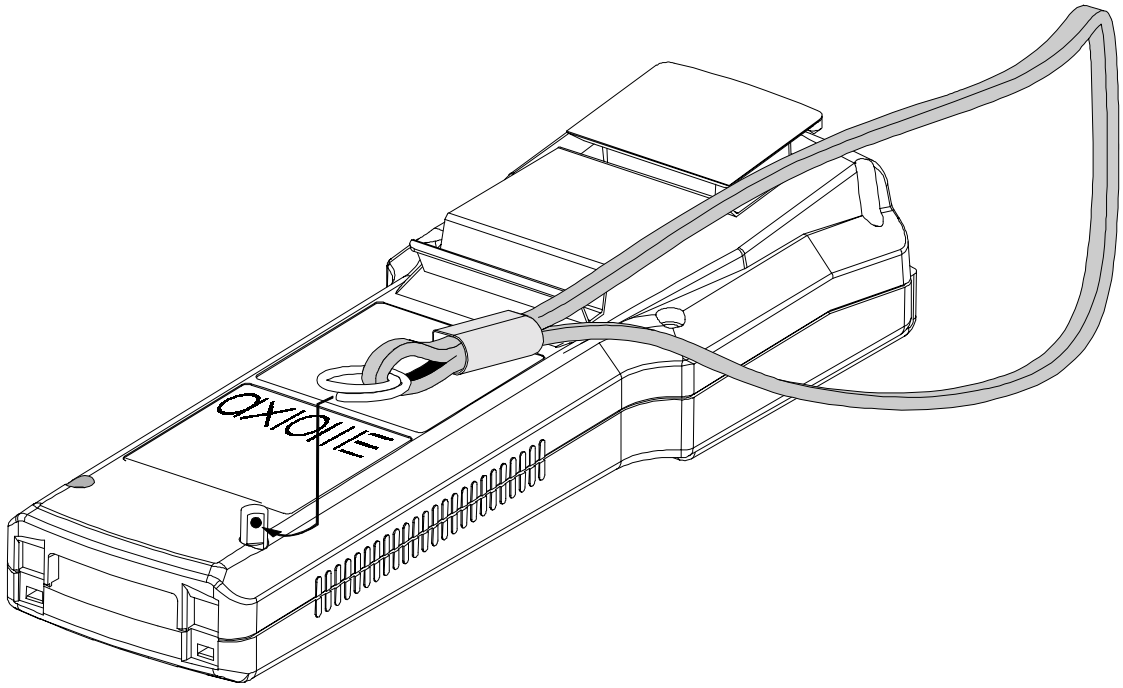
Volume 5: **AXEL Extended programming manual.**
The programming manual describes how to program BARman Laser using the AXELE language. This manual is delivered with the software package SDP350.

Volume 7: **BARman Laser user manual.**
Describes the BARman Laser TLL and LGA and there firmware AXEL_OS xx

Volume 8: **C programming manual.**
The programming manual describes how to program BARman Laser using the C language. This manual is delivered with the software package SDP300.

2.-3 Wrist strap

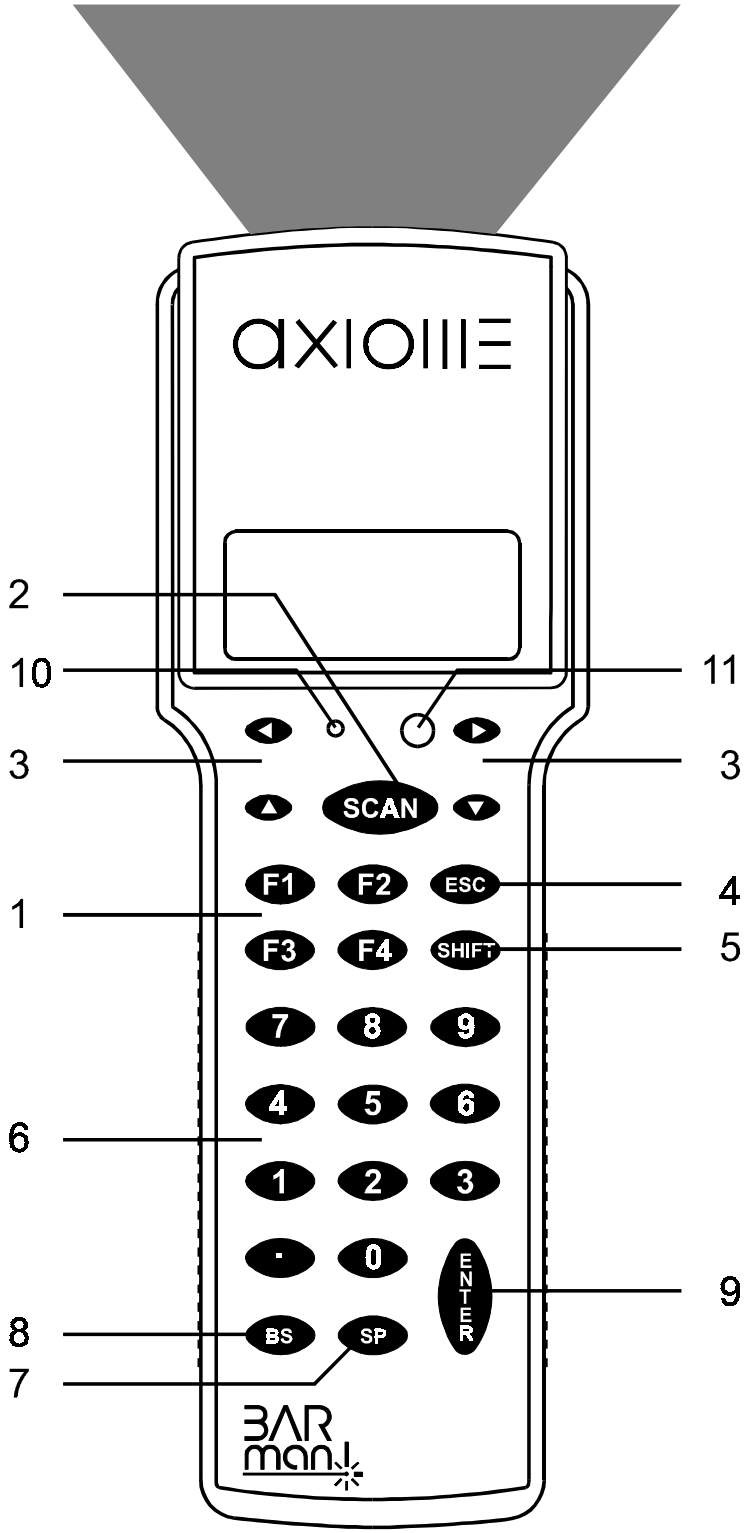
To avoid dropping the BARman Laser, we advise you to fit it with a wrist strap. The mounting is very easy, you just have to remove the metric screw, fix the special screw (delivered with the wrist strap) and insert the extremity of the split ring into the hole of the special screw (see drawing below).



2.-4 Keyboard

BARman Laser has a keypad with 25 alphanumeric and function keys. According to the way you are using the terminal, the keys can have different actions.

In the following figure you may distinguish the following groups of keys:

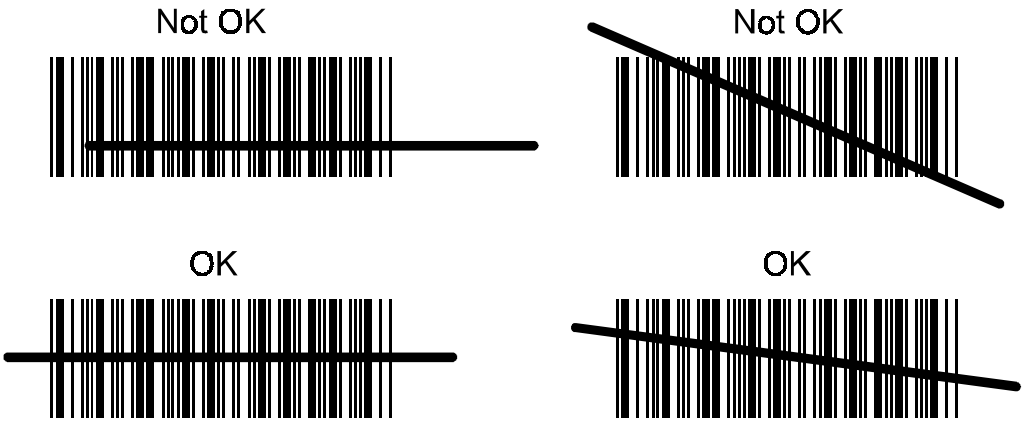


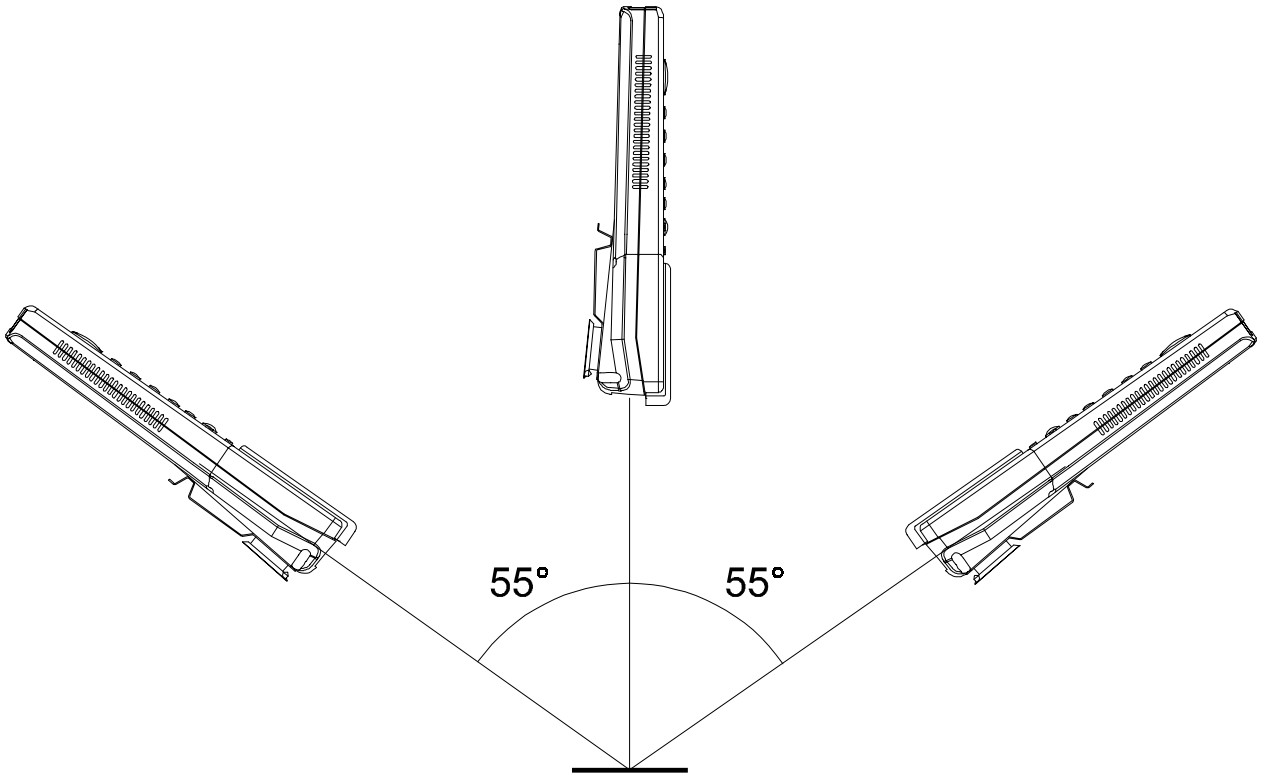
Group	Key	function in AXEL mode	function in C mode
1	**F1**	access to the first letter of the alphanumerical keys (see 6)	execute the functions assigned by the application program.
1	**F2**	access to the second letter of the alphanumerical keys (see 6)	execute the functions assigned by the application program.
1	**F3**	access to the third letter of the alphanumerical keys (see 6)	execute the functions assigned by the application program.
1	**F4**	switch display light ON-OFF	execute the functions assigned by the application program.
2	**SCAN**	short pressure: menu long pressure: activates terminal	activates terminal
3	**ARROW keys**	< scroll the message > scroll the message ∧ Menu function: next step Program function: "+" key ∨ Menu function: previous step Program function: "-" key	execute the functions assigned by the application program.
4	**ESC**	turn the terminal OFF	execute the functions assigned by the application program.
5	**SHIFT**	TLL: Not programmable LGA: Switch the displaying of the icon ON / OFF	Enables entry of optional alphabetical characters. SHIFT followed by pressure of one of the keys with the white alphabetical characters, displays the first of the three characters with one keystroke, the second character with two, and the third character with three; a fourth keystroke will disable the SHIFT key and display the numerical digit or main character instead (e.g. to key in letter B, press SHIFT then key "7" twice; if you want to add another optional character press SHIFT again followed by the desired key as many times as is necessary to select it). To disable SHIFT hit any other key or wait for a time-out of 2 seconds after the first pressure of an alphanumeric key.
6	**Alpha-numerical Keys**	Normal pressure of one of these keys will enter (and display) the numeric character. It will enter(and display) the first letter if you press the key after F1, the second if you press it after F2... as explained in point 1	Normal pressure of one of these keys will enter (and display) the main numeric or other character (printed in white on the keyboard); if previously you pressed SHIFT (printed in yellow), you can enter (and display) the optional characters of the keyboard which are printed in white (explained in point 5).

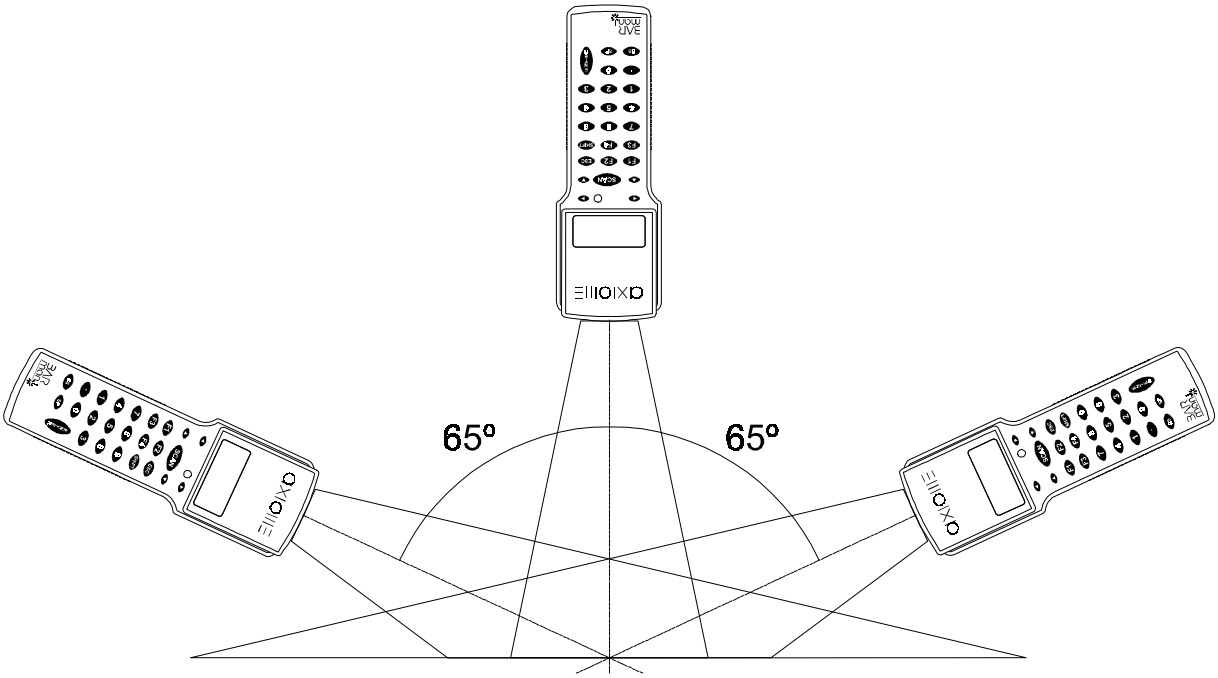
Group	Key	function in AXEL mode	function in C mode
7	**SP key**	introduces a space if pressed alone, or « + » if pressed after F1... as for the alphanumeric keys	Normally introduces a space, in optional mode (with SHIFT) it enables the white printed symbols.
8	**BS key**	Deletes the last character entered (unless you had afterwards pressed ENTER).	
9	**ENTER key**	Used to enter definitively (in other words validate) what you have just keyed in.	
10	**RESET key**	Keep the activation key (**2**) depressed together with the protected reset key (**10**) to activate the reset function. This will reset the contents of the data RAM and optionally, the program from the Flash-memory. The terminal is now ready for the downloading of a new AXEL_OS xx firmware version or a new C-compiled user program. To activate the protected key (**10**) use a propelling pencil, paper-clip (or similar) which you should gently push inside the blind hole on the terminal. Do not use sharpened objects. To prevent damage occurring to the button, do not press with force. **This key will destroy all the contents stored in data-storage RAM and optionally, in the program-storage Flash-memory (see chapter 4.-2)**.	
11	**LED**	Programmable LED in green, red or orange.	

2.-5 Barcode reading

A bar code is read successfully only if the laser beam covers the entire length of the code itself, if it is neither too close nor too far away (5 to 50 cm), and if the laser beam angle of incidence complies with the range values illustrated in the examples below.







2.-6 Manual activation of the terminal

Activation of the terminal using the Scan key.
The BARman Laser Pocket Terminal is provided with one activation push buttons *SCAN* (2); simply press to start up the terminal; with the terminal active the same keys enable the laser beam to start reading.

2.-6.1 AXEL mode

A quick pressure on SCAN key activates the menu functions and a long pressure activates the program.

The terminal will turn automatically OFF after a TIMEOUT delay or by pressing the ESC key. (see page 7)

2.-6.2 C mode

The terminal turns automatically OFF according to your program.

2.-7 Operation autonomy

Battery life depends on many variables, namely:
The number of reads made, temperature of the environment in which it operates, programmed autoswitch-off, battery age, etc.

Under normal conditions, operation autonomy is really more than enough to ensure a day's work.

When you finish your shift or in the evening, simply leave the BARman Laser Pocket Terminal in its ILS or ILM interface and you will find it completely recharged the morning after (make sure that mains voltage serving the outlet to which the BARman Laser ILS/ILM is plugged is not cut off during the night for safety reasons). If the terminal remains inactive for a prolonged period such as two or three weeks, it is advisable to download all the stored data and recharge the battery.

2.-7.1 Battery Storage

A battery left completely discharged for a long time may suffer irreparable damage and may hence become unreliable!
We therefore recommend recharging the terminal periodically (every 3-4 months), also when it is left unused.

2.-7.2 Recommendations for recharging

The time needed to fully recharge the batteries varies according to how much residual charge they have left. We recommend a minimum uninterrupted **recharging time of eight hours**.

Recharging should be done after using the terminal until the batteries are nearly flat. The LED on the ILS / ILM interface will give you following indications:.

ILS / ILM LED status	Barman Laser status
Off	No BARman Laser or not powered
Green blinking	charging in process
Green	maintain charge.
Red blinking	battery problem (if the problem persists, replace the battery)
Red	ILS / ILM problem (too low or high power supply voltage temperature too high for charging)

When batteries are new or have a very low charge (after the terminal has been left inactive for a very long time without being recharged) it is necessary to perform two or three charge and discharge cycles (with complete use) before the battery can reach its maximum capacity.

2.-8 Battery low

If the battery charge level drops to below the minimum set level during use, the message "Battery low" will be displayed and the terminal turns off; download the data by placing the BARman Laser in the ILS/ILM interface.

Let the BARman Laser charge up for at least eight hours (80% of the charge is obtained after four hours).

It could be that the previous work session had been completed normally, and that the voltage dropped while the laser was inactive; in this case when you press the activation key no message will appear and the terminal will not start up. Don't worry, your data is intact! Lodge your BARman Laser in ILS or ILM interface: you will see that once an adequate charge is reached this will enable the laser to work at its full potential and you will be able to download all the data to the PC (as required by the specific application program).

3. Installation

Before you can use the BARman Laser Pocket Terminal you will first have to prepare the system and carry out the necessary connections; to do this proceed as follows:

A. Be sure you have all the necessary material, namely:

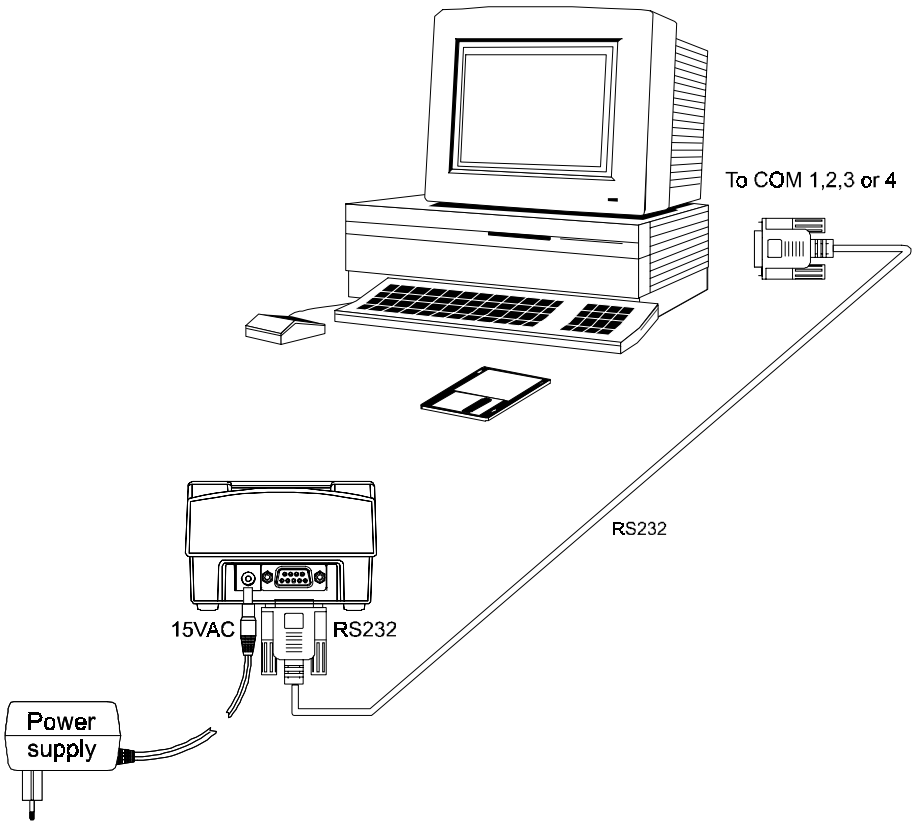
1 BARman Laser Pocket Laser Terminal
2 Interface ILS232, ILS422 or ILM complete with power supply
3 ILS/ILM - PC connection cable
4 Personal Computer with a free serial port
5 Disk with communication program + Application
6 A number of labels printed with bar codes for test reading.

B. Turn off the PC and any peripherals connected to it.

C. Plug the DB connector of the cable to the PC serial port, and insert the RJ11 for RS422 or DB9 for RS232 to the ILS interface — for more detailed information refer to the interface manual (volume 2).

D. Connect the BARman Laser interface ILS / ILM to the power supply (check that mains voltage is the same as the rated voltage supported by the power supply); plug the power supply into a wall socket or floor-type multi-outlet receptacle (triple plugs are unsuitable as they do not ensure reliable contact).

E. Power up the other peripherals and switch on the PC.



F1. If the battery is sufficiently charged the terminal will switch on when you press the activation push-button (if the Barman Laser remains on the ILS interface, the LED is **green)**.

F2. If the battery is low, then you will be given the message (if the Barman Laser remains on the ILS / ILM interface, the LED is **flashing green**):

F3. If the battery is discharged the terminal will not activate, so no message will be displayed. Conditions F2 and F3 require that you recharge the battery by placing the terminal on its interface.

G. During the BARman Laser battery recharging session, it's possible to install the necessary program for the BARman Laser on your PC.

4. BARman Laser TLL in AXEL mode

4.-1 Firmware AXEL_OS 1.1

Firmware AXEL_OS 1.1 is the BARman Laser TLL operating system which allows use it in AXEL mode. Without AXEL_OS 1.1, it is not possible to run a BARman Laser TLL in this mode. As the performance of BARman Laser TLL is modified from time to time to satisfy the needs of the market, a version number indicates the AXEL_OS xx in use.

Any BARman Laser TLL (new or repaired) leaving Axiome always contains the latest AXEL_OS version.

AXEL_OS 1.1 can be downloaded to the terminal after a hard reset by using:

- The download command under DOS (see chapter 4.-3)
- BARcom under WINDOWS 95 / NT (see integrated help)

AXEL_OS 1.1 also includes the barcode decoding modules and the demo1 program, so the BARman Laser is immediately ready for barcode reading.

4.-2 Hard reset

To activate the hard reset press the SCAN and RESET keys simultaneously (see page 9). The activation of reset interrupts the application program. Running then resumes from the Bootstrap-Loader which prompts you to erase the application program:

```
PROGRAM
 ERASE              ?
5=No        3=YES
```

By pressing key "3" you will erase the flash memory (AXEL_OS, decoders) and the RAM memory (user program, tables, data).
The LCD displays the message:

```
BOOTSTRAP-
 LOADER        v1r0
ErasPrgFlash
```

During Flash-memory deletion the LED emits red light.

By pressing key "5", or leaving inactived for approximately 25 seconds, you will erase the RAM memory (user program, tables, data).

Remark: The activation of reset always deletes data.

Now, if you haven't yet placed the terminal on it's interface, it will switch off to limit energy consumption. But once you do place the terminal on the device, it will automatically configure itself to receive the firmware AXEL_OS 1.1, displaying the message:

```
BOOTSTRAP-
 LOADER       v1r0
WaitDownLoad
```

The complete test cycle takes about 2 seconds. Now your BARman Laser is ready to receive the firmware AXEL_OS 1.1.

4.-3 Downloading of AXEL_OS 1.1

To download the firmware AXEL_OS 1.1, run the appropriate batch file:

AXOS11_1.BAT (use COM1 port)

or

AXOS11_2.BAT (use COM2 port)

You will see the program download process evolution on your monitor screen together with the above mentioned information as shown below.

```
DOWNLOADING APPLICATION FILE AXEL_OS11.hex VIA SERIAL COMMUNICATION PORT 1 V0r2
Hit any key to abort.

AXEL_OS11.hex file size: 146166

1% ———————— 25% ———————— 50% ———————— 75% ———————— 100%
████████████████████████████████████████████████████████████

3390 Records processed, 146166 bytes
Elapsed time: 00:01:24
Download completed
```

In case of abort, shut off and power on the BARman Laser TLL again, before retrying the downloading of AXEL OS 1.1.

When the download procedure is finished, the BARman Laser TLL will initialise its RAM memory and execute different procedures. The BARman Laser is ready to use when it displays:

```
AXIOME
                _

AXEL OS 1.1
```

4.-4 AXEL_OS 1.1 special functions

Regardless of the user's program, AXEL_OS 1.1 integrates a menu which allows consulting of different status.

To consult the menu, BARman Laser TLL must be OFF. Pressing quickly on the SCAN key runs the menu, the keys ∧ and ∨ allow access to the different functions of the menu.

When consulting the menu, the only active keys are:

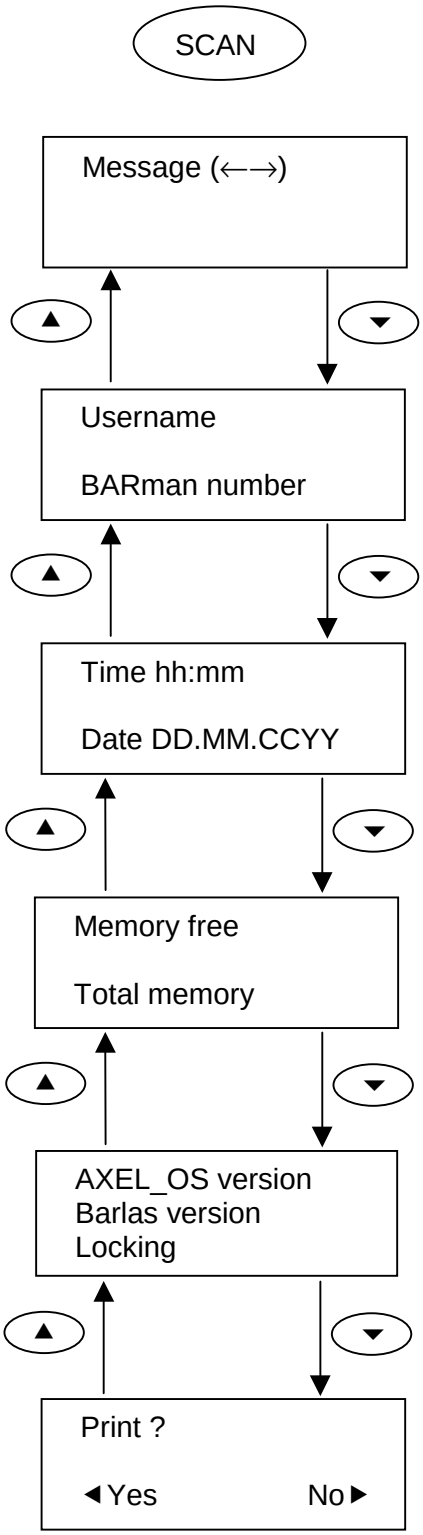
< and >	:	scroll the message or select YES / NO
∧ and ∨	:	access the different menu functions
F4	:	backlight ON-OFF
ESC	:	switch the terminal OFF
SCAN	:	start the AXEL menu or the user program

You may press these keys at any time within the menu

NOTE: Without any action on a key for 10 seconds (default value), BARman Laser TLL will automatically turn OFF.

4.-4.1 AXEL OS 1.1 menu

Main menu



4.-4.2 Message

Message (< >)

To consult a message, use the keys < and >. To change the message, refer to the software communication manual. This display appears only if a message has been sent.

4.-4.3 Username and BARman number

Username BARman number

Displays the user name defined with the AXEL's setup command. To change it, refer to the software communication manual.

4.-4.4 Time and date

Time hh:mm Date DD.MM.YY

Indicates the BARman time and date. To change it, refer to the software communication manual.

4.-4.5 Memory

Memory free Total memory

Indicates in Kbytes the space left free in BARman, as well as the total memory of the unit

Note that AXEL OS 1.1, the program and the tables take up space in the memory. A normal application will leave about 95 Kbytes free for data for a TLL 128 (128 Kbytes RAM memory) and about 478 Kbytes free for data for a TLL 512 (512 Kbytes RAM memory).

4.-4.6 Version and locking

AXEL_OS version BARlas version Locking

Indicates the version number of AXEL_OS and of BARlas (internal library).
Also indicates if the BARman is locked (a password has to be introduced before using) or unlocked (ready to be used)

4.-4.7 Print

Print < Yes No >

After selection of this item and if the first function of the user's program is « `IF PRINTER = 1 GOTO label` » BARman will jump to « label » to start a print procedure on the serial port of the interface. Otherwise the BARman will turn OFF.

4.-5 Programming software

AXEL EXTENDED is the programming language for BARman and BARman Laser TLL with AXEL_OS 1.1. With it you can write a program for data collection according to your needs.

The AXEL EXTENDED programming tool for BARman and BARman Laser (TLL and LGA) is described in detail in volume 5.

5. BARman Laser LGA in AXEL mode

5.-1 Firmware AXEL_OS 4.1

Firmware AXEL_OS 4.1 is the BARman Laser LGA operating system which allows use in AXEL mode. Without AXEL_OS 4.1, it is not possible to run a BARman Laser LGA in this mode. As the performance of BARman Laser LGA is modified from time to time to satisfy the needs of the market, a version number indicates the AXEL_OS xx in use.

Any BARman Laser LGA (new or repaired) leaving Axiome always contains the latest AXEL_OS version.

AXEL_OS 4.1 can be downloaded to the terminal after a hard reset by using:

- The download command under DOS (see chapter 4.-3)
- BARcom under WINDOWS95 (see integrated help)

AXEL_OS 4.1 also includes the barcode decoding modules and the demo1 program, so the BARman Laser LGA is immediately ready for barcode reading.

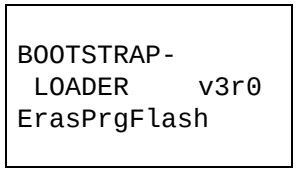
5.-2 Hard reset

To activate the hard reset press the SCAN and RESET keys simultaneously (see page 9). The activation of reset interrupts the application program. Running then resumes from the Bootstrap-Loader which prompts you to erase the application program:

```
PROGRAM
ERASE?
↑=No        ↓=YES
```

By pressing the "▼" key, you will erase the flash memory (AXEL_OS 4.1, decoders) and the RAM memory (user program, tables, data).

The LCD displays the message:

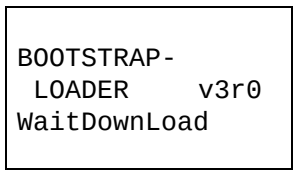


During Flash-memory deletion the LED emits red light.

By pressing the "▲" key or leaving inactive for approximately 25 seconds, you will erase the RAM memory (user program, tables, data).

Remark: The activation of reset always deletes data.

Now, if you haven't yet placed the terminal on it's interface, it will switch off to limit energy consumption. But once you do place the terminal on the device, it will automatically configure itself to receive the firmware AXEL OS, displaying the message:



The complete test cycle takes about 2 seconds. Now your BARman Laser is ready to receive the firmware AXEL_OS 4.1.

5.-3 Downloading of AXEL_OS 4.1

To download the firmware AXEL_OS 4.1, run the appropriate batch file:

AXOS41_1.BAT (use COM1 port)

or

AXOS41_2.BAT (use COM2 port)

You will see the program download process evolution on your monitor screen together with the above mentioned information as shown below.

```
DOWNLOADING APPLICATION FILE AXEL_OS41.hex VIA SERIAL COMMUNICATION PORT 1 V0r2
Hit any key to abort.

AXEL_OS41.hex file size: 146166

1% ———————— 25% ———————— 50% ———————— 75% ———————— 100%
████████████████████████████████████████████████████████████

3390 Records processed, 146166 bytes
Elapsed time: 00:01:24
Download completed
```

In case of abort, shut off and power on the BARman Laser LGA again, before retrying the downloading of AXEL_OS 4.1.

When the download procedure is finished, the BARman Laser will initialise its RAM memory and execute different procedures. The BARman Laser is ready to use when it displays:

```
AXIOME


     AXEL OS 4.1
```

5.-4 AXEL_OS 4.1 special functions

Regardless of the user's program, AXEL_OS 4.1 integrates a menu which allows consulting of different status.

To consult the menu, BARman Laser LGA must be OFF. Pressing quickly on the SCAN key runs the menu, the keys ∧ and ∨ allow access to the different functions of the menu.

When consulting the menu, the only active keys are:

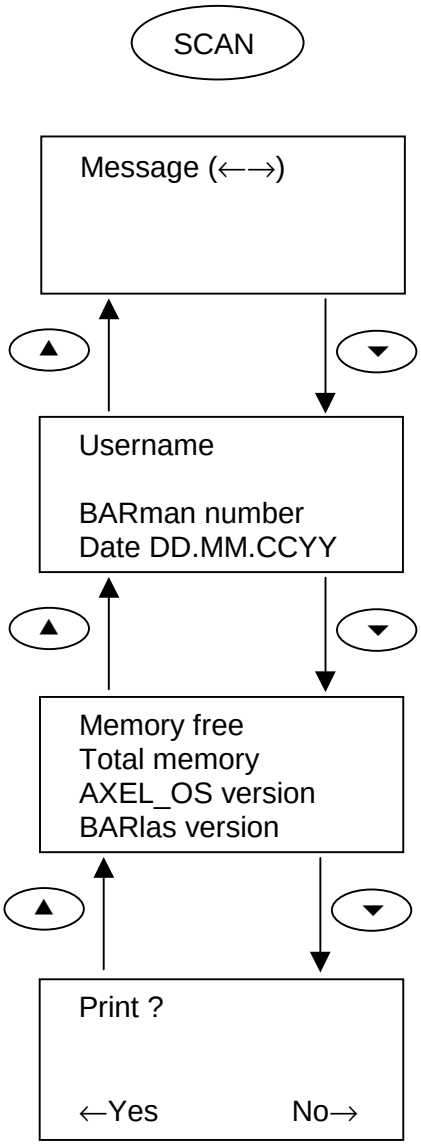
< and >	:	scroll the message or select YES / NO
∧ and ∨	:	access the different menu functions
F4	:	backlight ON-OFF
ESC	:	switch the terminal OFF
SCAN	:	start the AXEL menu or the user program
SHIFT	:	switch ON / OFF the displaying of the icons

You may press these keys at every time within the menu

NOTE: Without any action on a key for 10 seconds (default value), BARman Laser will automatically turn OFF.

5.-5 AXEL_OS 4.1 menu

Main menu



5.-5.1 Message

Message (←→)

For consulting a message, use the keys ◄ and ►. To change the message, refer to the software communication manual. This display appears only when a message was sent.

5.-5.2 Username, BARman number and Date

Username BARman number Date DD.MM.CCYY

Displays the user name defined with AXEL's setup command. To change it, refer to the software communication manual.

5.-5.3 Memory and version

Memory free Total memory AXEL_OS version BARlas version

Indicates in Kbytes the space left free in BARman, as well as the total memory of the unit

Note that AXEL_OS 4.1, the program and the tables take up space in the memory. A normal application will leave about 95 Kbytes free for data for a LGA 128 (128 Kbytes RAM memory), about 478 Kbytes free for data for a LGA 512 (512 Kbytes RAM memory) and about 990 Kbytes free for data for a LGA 1024 (1024 Kbytes RAM memory).

Indicates the version number of AXEL OS and of BARlas (internal library).

5.-5.4 Print

Print ? ←Yes No→

After selection of this item and if the first function of the user's program is « `IF PRINTER = 1 GOTO label` » BARman will jump to « label » to start a print procedure on the serial port of the interface. Otherwise the BARman will turn OFF.

5.-6 Icon function

In AXEL_OS 4.1, the BARman Laser LGA displays different icons depending on the action.

5.-6.1 Message icon

The message icon will be displayed when the BARman Laser LGA has stored a new message or as long as the message isn't accepted hasn't been acknowledged.

5.-6.2 Battery icon

The battery icon displays to battery capacity status. The BARman Laser LGA has four different level.

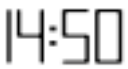
Battery is full.

Battery is $^{2}/_{3}$ full.

Battery is $^{1}/_{3}$ full.

Battery is empty. (For more information check chapter 2.-8)

5.-6.3 Time icon



Indicates the BARman Laser LGA time. To change it, refer to the BARman communication manual (Volume 3 or 4).

5.-7 Programming software

AXEL EXTENDED is the programming language for BARman and BARman Laser with AXEL OS. With it you can write a program for data collection according to your needs.

The AXEL EXTENDED programming tool for BARman and BARman Laser is described in detail in volume 5.

6. BARman Laser in C mode

6.-1 Download command (DL)

To download the application program you will need the following hardware:

- MS-DOS® Personal Computer, AT type or later versions;
- 1.44 MByte floppy disk driver (3.5”);
- RS232 serial adapter.

The Download command allows you to transmit the application program from the host computer to the BARman Laser Pocket Terminal via RS232 serial line, ILS interface and the appropriate patch cord.

The command is contained in the file:

```
DL.EXE
```

6.-2 Starting download procedure

```
DL [f] [C] <ENTER>
```

Activates the Download command with the relevant options (separated by a space).

[f] (filename);

accepted values: /fFILENAME.EXT

[C] (serial communication port);

accepted values:	*	p1	COM1 port	* default value
		p2	COM2 port	

The Download program also displays:

- file size;
- number of records downloaded;
- time elapsed for download operation;
- serial port used;
- operation completed message;
- error messages due to:
  - no files to download.
  - no assent to download from destination terminal.
  - program download operation aborted due to error.
- version and release of program downloaded.

6.-2.1 Download procedure for BARman Laser TLL

RESET key: Keep the activation key *SCAN* depressed together with the protected reset key (**10**) to activate the reset function. This will reset the contents of the data RAM and optionally, the program from the Flash-memory. The terminal is now ready for the downloading of a new program.
To activate the protected key (**10**) use a propelling pencil, paper-clip (or similar) which you should gently push inside the blind hole on the terminal. Do not use sharpened objects. To prevent damage occurring to the button, do not press with force.

```
PROGRAM
 ERASE              ?
5=No          3=YES
```

Press the key "3" to erase the application program and data RAM (terminal ready to receive the application program).

Type : C:>DL /fAPL1.HEX p2 <ENTER>

This triggers the download procedure and modifies the communication port used with respect to the standard configuration.
You will view the program download process evolution on your monitor screen together with the above mentioned information as shown below.

Type :

```
C:>BARmanL>DL /fAPL2.hex <ENTER>
```

```
DOWNLOADING APPLICATION FILE APL2.hex VIA SERIAL COMMUNICATION PORT 1 V0r2
Hit any key to abort.

APL2.hex file size: 146166

1% ———————— 25% ———————— 50% ———————— 75% ———————— 100%
■■■
```

To activate the protected key (**10**) use a propelling pencil, paper-clip (or similar) which you should gently push inside the blind hole on the terminal. Do not use sharpened objects. To prevent damage occurring to the button, do not press with force.

```
PROGRAM
ERASE ?
↑=No     ↓=YES
```

Press the "▼" key to erase the application program and data RAM (terminal ready to receive the application program).

Type : C:>DL /fAPL1.HEX p2 <ENTER>

This triggers the download procedure and modifies the communication port used with respect to the standard configuration.
You will view the program download process evolution on your monitor screen together with the above mentioned information as shown below.

Type :

```
C:>BARmanL>DL /fAPL2.hex <ENTER>
```

```
DOWNLOADING APPLICATION FILE APL2.hex VIA SERIAL COMMUNICATION PORT 1 V0r2
Hit any key to abort.

APL2.hex file size: 146166

1% ———————— 25% ———————— 50% ———————— 75% ———————— 100%
████████████████████████████████████████████████████████████

3390 Records processed, 146166 bytes
Elapsed time: 00:01:24
Download completed
```

To interrupt the download operation, press any key; this will cause return to the operating system (DOS) and display the information illustrated below on your monitor screen:

Type :

```
C:>BARmanL>DL /fAPL2.hex <ENTER>
```

```
DOWNLOADING APPLICATION FILE APL2.hex VIA SERIAL COMMUNICATION PORT 1 V0r2
Hit any key to abort.

APL2.hex file size: 146166

1% ———————— 25% ———————— 50% ———————— 75% ———————— 100%
■■■
```

7. Maintenance

7.-1 Replacing the battery

To replace the battery with a new one proceed as follows:

A. Place the terminal with the keypad facing downwards on a soft, flat surface (sponge, tweed cloth or similar).

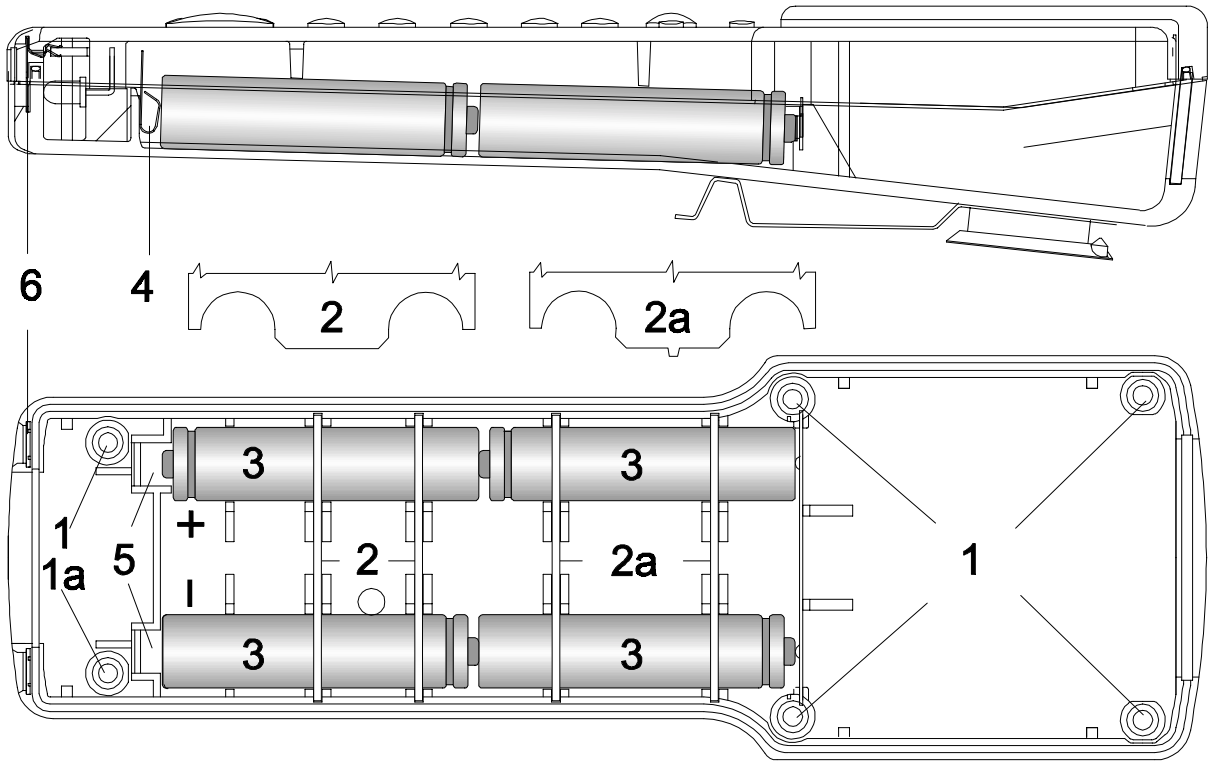
B. Remove the six screws (1 and 1a) that secure the two half-shells together, turn the terminal with the keypad upwards and open it.

C. Remove the four plastic bridges (2 and 2a), remove faulty battery (3). Fit the new battery making sure that its polarity complies with the indications on the shell. Insert the four plastic bridges (2 and 2a).

D. Reunite the two half-shells and make sure that the contacts (4) fit in their recesses (5) without forcing and that the recharging contacts (6) fit snugly into their seat in the cradle;

E. The two half-shells have to fit together without forcing (at this stage the pen tip should light up and a set of messages be displayed).

F. Tighten the six screws (1 and 1a) without forcing. Please note that the screw (1a) for the wrist strap is special don't put another screw in this hole.



A supercap **keeps data in memory for three minutes**. This allows you to take your time to replace the battery without running the risk of losing any data. It is always advisable to transfer, if possible, all residual data before opening the terminal.

It is essential, however, that you open the terminal only when it is off.

Note: Replace battery only with originals; use of non-original battery may cause malfunctioning.

After you finish replacing the battery pack you can proceed to download the data (if you weren't able to do so before) and insert the terminal in the ILS/ILM interface. **Let the terminal charge up for at least 8 hours.**

As in all Nickel-Cadmium batteries, do not short-circuit the battery contacts or put the batteries in fire as they may explode. You are recommended to discard worn out or damaged batteries in eco-friendly battery disposal bins.

The IP65 protection degree cannot be guaranteed after opening of the unit

7.-2 Spare parts

Use only original spare parts to avoid any technical trouble or warranty problems.

Your terminal must be repaired by an authorized AXIOME dealer. AXIOME declines the warranty for any misuse or repair by a non authorized service point.

7.-2.1 Spare parts available for BARman Laser TLL

Description	Part number
Battery pack	F.BLACU000
Keyboard	F.BLKBD000
Complete box	F.BLBOI000
3 lines display	F.BLAF2000
Scanner	F.BLLAS000
Main board 128 KB	F.BLBRD128
Main board 512 KB	F.BLBRD512

7.-2.2 Spare parts available for BARman Laser LGA

Description	Part number
Battery pack	F.BLACU000
Keyboard	F.BLKBD000
Complete box	F.BLBOILGA
4 lines display	F.BLAF4000
Scanner	F.BLLAS000
Main board 128 KB	F.BLBLGA28
Main board 512 KB	F.BLBLGA12
Main board 1024KB	F.BLBLGA24

8. Technical specifications for BARman TLL

Optical

Reading source	laser scanner, VLD source, 650 nm
Scan rate	36±3 scan/sec
Minimum resolution	0.15 mm
Skew or yaw angle	± 65°
Pitch or roll angle	± 55°
Depth of field	30 up to 500 mm
Optical transceiver	built-in

Electrical

Micro-controller	8 bit CMOS
	8 KB bootstap-loader PROM
Data RAM	128/512 KB SRAM
Power supply	4 Nickel/Cadmium 200 mA/h battery
Battery charger	ILS232 – ILS422

Physical

Technology	SMT (Surface Mounting Technology)
Dimensions LxWxH	165 x 56 x 32 mm
Weight	184 g. including battery
Buzzer	piezoelectric, programmable in frequency, and duration
Led	programmable red/green led
Display	high contrast back-lit, alphanumeric 36 character LCD with three lines
Calendar/clock	quartz RTC, programmable date and time with automatic handling of leap years
Keyboard	25 functional and control silicone rubber keys, reset key

Environmental

Temperature	Operating -20 up to +50°C
	Storage -30 up to +50°C
Relative humidity	95% non-condensing
Degree of Protection	IP 65
Electrostatic charges	IEC 801-2 (up to 15KV)
Tumble resistance	from 1 mt onto concrete
Safety standard	IEC 825 class 2 laser product

Programming features

Bar codes decoded	EAN-8, + add-on-2, + add-on-5
	EAN-13, + add-on-2, + add-on-5
	UPC/A, + add-on-2, + add-on-5
	UPC/E, + add-on-2, + add-on-5
	Interleaved 2 of 5 (ITF)
	Industrial 2 of 5
	ITF 14
	Matrix 2 of 5
	Codabar - Monarch - NW7 - 2 of 7
	Code 39
	Code 39 extended
	Italian pharmaceutical
	French pharmaceutical (CIP)
	Code 93
	Code 128 / EAN 128
	MSI
	Delta A IBM

9. Technical specifications for BARman LGA

Optical

Reading source	laser scanner, VLD source, 650 nm
Scan rate	36±3 scan/sec
Minimum resolution	0.15 mm
Skew or yaw angle	± 65°
Pitch or roll angle	± 55°
Depth of field	30 up to 500 mm
Optical transceiver	built-in

Electrical

Micro-controller	8 bit CMOS
	8 KB bootstap-loader PROM
Data RAM	128 KB / 512 KB / 1MB SRAM
Power supply	4 Nickel/Cadmium 250 mA/h battery
Battery charger	ILS232 – ILS422

Physical

Technology	SMT (Surface Mounting Technology)
Dimensions LxWxH	165 x 56 x 32 mm
Weight	184 g. including battery
Buzzer	piezoelectric, programmable in frequency, and duration
Led	programmable red/green led
Display	high contrast back-lit, icons, alphanumeric 64 character LCD with four lines
Calendar/clock	quartz RTC, programmable date and time with automatic handling of leap years
Keyboard	25 functional and control silicone rubber keys, reset key

Environmental

Temperature	Operating -20 up to +50°C
	Storage -30 up to +50°C
Relative humidity	95% non-condensing
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Programming features

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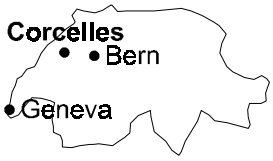
	EAN-13, + add-on-2, + add-on-5
	UPC/A, + add-on-2, + add-on-5
	UPC/E, + add-on-2, + add-on-5
	Interleaved 2 of 5 (ITF)
	Industrial 2 of 5
	ITF 14
	Matrix 2 of 5
	Codabar - Monarch - NW7 - 2 of 7
	Code 39
	Code 39 extended
	Italian pharmaceutical
	French pharmaceutical (CIP)
	Code 93
	Code 128 / EAN 128
	MSI
	Delta A IBM

AXIOME SA
Rue de la Gare 5a
CH-2035 Corcelles Switzerland

Tel. +41 (0)32 730 46 20
Fax. +41 (0)32 731 64 93

http://www.axiome.ch/
mailto:axiome@access.ch



AXIOME Alpha GmbH
Justus-v.-Liebig-Str. 2
D-85435 Erding Germany

Tel. +49 (0)8122 88095 0
Fax. +49 (0)8122 88095 10

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